AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 124. NO. 17.
WHOLE NO. 3573.

NEW YORK, SATURDAY, APRIL 24, 1926

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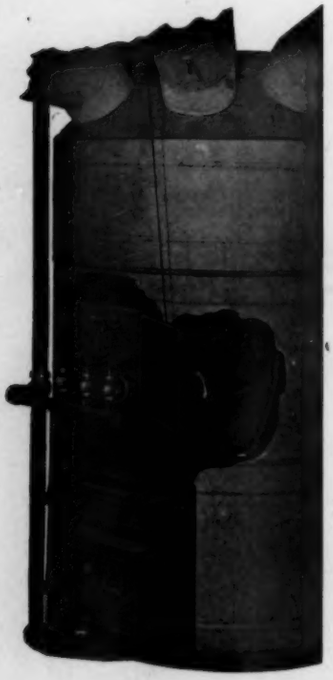
House heating with gas is here to stay. Forget the difficulties and look to the future possibilities and make the house-heating load a most profitable one.



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Splendid results have been obtained by a display of our special demonstration outfit; it is most convincing as a truly efficient house-heating system. Don't delay! Write immediately for further information and profit on sales of both gas and appliance.

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American Gas Journal

SIXTY-SEVENTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. & Treas. C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y.

STANTON G. KRAKE, Managing Editor ISMAR GINSBERG, Editor

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Subscription $3.00 per year, including postage, in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada, $4.00; foreign, $5.00—Single Copies, 10 cents.

AMERICAN GAS JOURNAL, April 24, 1926. Vol. 124. No. 17.
Published weekly by American Gas Light Journal, Inc., New York, N. Y.
Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL

Established 1859—Pioneer of the Gas Industry

Vol. 124. No. 17. NEW YORK, APRIL 24, 1926 Whole No. 3573

Do Window Diplays Pay?

They make for greater gas sales and develop good will

S. C. Reiser

Director of Display Advertising, The Laclede Gas Light Company, St. Louis, Mo.

SINCE window displays have become a regular part of the business equipment of public utility companies, the display managers are frequently asked whether the added expense pays and if window displays really can make any difference.

"What do you go to all that trouble for?" is the question. And the inquisitor usually goes on: "I can't see why a gas company (or whatever the public utility may be) should spend its money for displays. There are just so many people, and they will use just so much gas . . . and what can you possibly gain by the expense of elaborate window trimming?"

That, generally, is the form the questions take. I hear them often, and I am sure that the display managers of other public utilities have the same experience.

The first and immediate answer to such questions is: If window displays did not pay they would not be used by public utility companies. Simple . . . isn't it? But some folks seem to think that the gas company, and the electric company, and all the rest have money to squander. They haven't. If window displays failed to produce, if their value could not be demonstrated, they would have been discarded long ago, for public utilities usually have to operate on too small a margin to indulge in any profitless fancies.

Window Displays Do Pay

In the public utility field, window displays do pay. The concrete experiences of The Laclede Gas Light Company and dozens of others could be cited to prove this point. But as a matter of fact, the value of window displays for public utility companies does not have to be proved. We long ago passed the point where there was any doubt about the matter. The important thing is to analyze how window displays can be put to work for a company like The Laclede Company, to ascertain what to do with window displays and what to expect from them for the public utility

There are two fundamental and primary uses to which the windows of a public utility company can be put. One is to sell merchandise; the other good will.

They Sell Merchandise

Under the first classification, two things are meant by the term "merchandise." The terms must be understood to mean the appliances and accessories —the merchandise proper; and it must also be understood to mean the essential or commodity of the company—gas, electricity, communication, transportation, etc.

Selling appliances—from hot water heaters to electric fans—is like selling any other kind of similar merchandise. The display problems of the public utility with respect to appliances are no different from the display problems of any merchant.

As a matter of fact, the public utility is actually a retailer in competition with every other retailer of the same or similar articles. The least that the public utility can do is to display its wares with equal attractiveness. If it expects to outdo its competitors in sales, it must outdo them in merchandising skill.

The utility, however, has a tremendous advantage over other retailers of household appliances. And that is this: Every time a gas appliance is sold it means an additional and more or less continuous use of gas; every time an electric device is sold, it means an additional and more or less continuous use of electricity.

Two-Fold Value

Hence, the value of attractive and compelling window displays is two-fold for the public utility. Windows which sell merchandise make one immediate profit for the company, and at the same time they increase the demand for the company's service.

The sale of appliances is sure to result in increased sale of the company's service. Windows which display appliances attractively and sellingly pay for themselves immediately; and the best part of their use is that they keep paying for themselves by earning increased revenue.

It is a relatively easy matter to plan windows which display merchandise effectively. Window displays which sell the service, or the basic commodity, of the company are not so easy. How can you display gas? Or electricity?

The problem does not appear to be easy to solve, nor is it. Much patient and imaginative thinking must be applied to the task. Some companies have successfully used window displays depicting the industries of a community which are served by the utility company. Such displays serve the triple purpose of patting each represented industry on the back, of suggesting similar arrangements with other factories, and of creating favorable attention on the part of the public.

Besides tangible and measurable returns in the immediate sales of merchandise and the subsequent and continuous sale of service which result from window displays on appliances and equipment, there is another type of benefit which may be derived by public utilities from an intelligent and artistic use of another type of display.

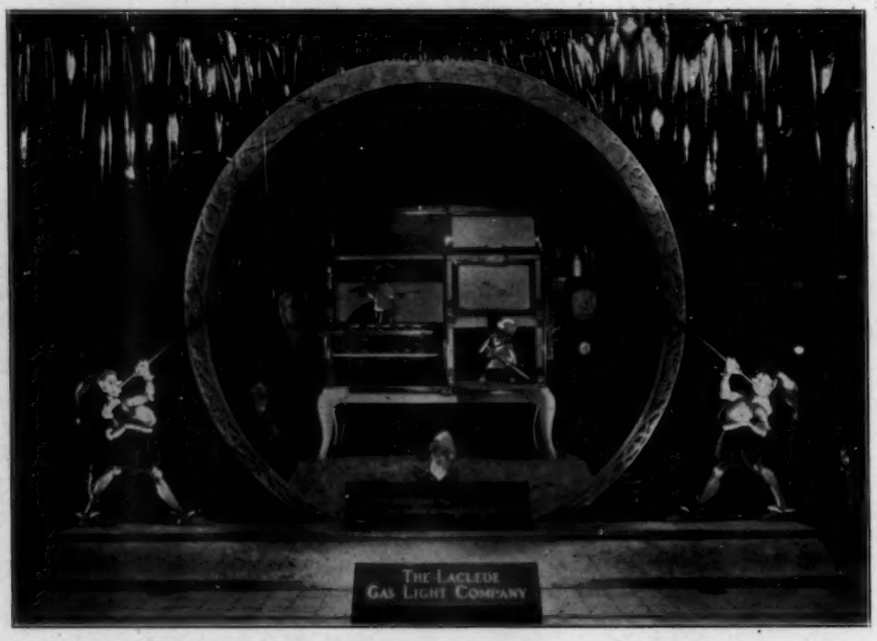
Window Displays and Good Will

This brings us now to that intangible, often abused and frequently misunderstood term "good will." Much is done in the name of good will because other and better justification is lacking, and the term is made the objective of a great deal of merely clever effort.

If the task in hand is properly understood, if the end in view is clear cut and certain, and if the manner of reaching that end is carefully worked out, then good will can really be created and made to do incalculable service for the public utility.

Just how to design a series of window displays to build good will is a problem which is usually determined by local conditions. We feel that the Laclede Company's windows which told the story of man's dependence on fire and how gas supplied that need, were of considerable value in linking us up with the community. The displays which followed, showing high spots in the mutual history of the community and the company, materially strengthened and added to the good will which exists but which we are cultivating nevertheless, for no public service corporation can have too many friends.

The job of planning window displays which will develop good will depends on local conditions and



A Gold Plated Gas Range Display—Glorifying the Gas Range

must be worked out accordingly. But the uses to which good will displays can be put are universally about the same. The objectives are constant. It is merely the routes to the goal which vary.

There Are Many Objectives

The objectives of good will window displays are many. In the first place, such displays should put a human aspect on the public service corporation. Such displays can be used to show the public that the company, after all, is human; that it is a part of the community; that it depends on the community to please as any other institution from the smallest store up. Good will window displays can go far toward making the public utility a vital and esteemed part of the community.

Any means by which the public service corporation wins and cultivates friends is beneficial in various ways. A company that is known for its fairness and for its importance to the community cannot easily be harassed. Good will is a great bulwark against this sort of thing.

Good will makes adverse legislation more difficult of enactment. By making the aims, the ideals, and the service of the company known to the general public, all effort toward the development of good will tends to stifle the suspicion and distrust which invariably exists in the mass mind as it views large and strange forces.

Selling Securities Through the Window Display

And then there is another and often more definite benefit resulting from the creation of good will. I am referring now to the necessity, from time to time, of selling a company's securities to the general public in order to raise funds necessary for the expansion of the company's facilities. Window displays which have paved the way by telling the story of the company's service make the job easier. That this should be so is obvious, for such window displays have already done the preliminary work.

And, in addition to the creation of public confidence in the company's affairs, window displays can be used during a securities campaign to push the sale of the issue just as they might push the sale of the commodities in which the company deals.

Conclusion

Going back now and concluding, I should like to point out again that the two fundamental and primary uses to which the window displays of a public utility can be put are: (1) To sell merchandise, and (2) to build good will.

From the former, the benefits occur in two ways. In the first place, the sale of merchandise in the shape of various appliances is stimulated. The retail department of the public utility benefits just as privately owned retail stores benefit from good window displays. And in the second place, the revenue of the utility from its main service is increased because every appliance sold means another outlet for the company's essential commodity, gas, etc.

From the latter, benefits occur in many ways. The establishment and cultivation of good will put a human aspect on a big company. Good will means good friends in the community. Which in turn means that the enemies of the company cannot thrive so easily. When the company wants something, the community is apt to be in accord more readily and, therefore, make the company's desires easier to attain. And when the company wants to enlarge its capital resources, the good will which it has nurtured means a ready multitude willing to "go into partnership" with their utility.

What form the window displays should take depends on what you have to sell, where you have to sell it, and what message will best convey your store. Be sure that you know the answers to these three questions before you start.

What results will be depends on how you plan and execute your windows. The possible results are as I have outlined them in the foregoing paragraphs. Don't be satisfied with less.

OUR FIRST ANNUAL WINTER
NEW for OLD
Sale of
ROPER
Gas Ranges
TRADE IN OLD STOVE
STARTING MARCH 1st
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$5 DOWN And a Year to Pay the Balance
Delivered and Connected Free
Enjoy Greater Economy and Luxury
Millions of dollars worth of food and gas are wasted annually by the use of old, out-of-date gas ranges
To enable the ladies of this city to stop this waste we offer them the ROPER RANGE equipped with Roper Complete Oven Control—a range that is guaranteed for 5 years.
It is economy to own a Roper, the range your heart desires. It is extravagant not to own one.
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BUY NOW TO SAVE NOW
It is the chance of a lifetime to save money. Order now to take advantage of this opportunity which may never come again.
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Phone Har. 2421-2422
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Be Sure the Roper Purple Line and the Roper Complete Oven Control are on the Range You Buy.

An Advertisement Which Helped to Sell Gas Ranges

The Still Coke Oven *

Details of heat balance are given

Dr. H. Kuhn

THE heat unit requirements of 336 to 388 calories per kilogram of dry coal, disclosed in the report (see Table 4), obtained under normal operative conditions, and fully substantiated by reports from other Still batteries, are not obtainable in ovens of the one-flame under-firing type. A comparison with figures obtained with modern American ovens is interesting. Becker[1] claims 578 calories for the trial battery of 5 Becker ovens in Chicago, i.e., after making due allowance for the average moisture of American coal of 3%, about 565 calories per kg. of dry coal. Porter says that the "usual" consumption of heat in modern coke ovens in America is 578 to 770 calories, or about 565 to 763 calories for dry coal, and substantiates this statement with a number of examples. Wilson, Forest, Herty, report one case of 616 calories for dry coal. The figures taken from Still ovens are, therefore, in part, over 40% less. This difference is explained in the main by the avoidance of the losses of heat, mentioned above, which occur in the one-flame oven, especially those resulting from overcoking. The saving of fuel gas involved is considerable.

A Heat Balance

The following is a heat balance obtained on a Still oven installation at the plant of Powell and Duffryn Co., Ltd. The investigation was for the purpose of determining the total yield and requirements of gas for under-firing a battery of 50 Still regeneration coke ovens.

The following investigation was carried out during a continuous period of 72 hours: Measurements were taken of the volumes of gas in the gas mains and in the auxiliary gas mains, feeding gas to the burners, by means of the retarding process.

The differential pressures were measured by a micromanometer filled with alcohol and adjusted in proportion of 10 to 1. Pressures were read every three minutes during the entire investigation. The zero point was checked every half hour, and the condensates, accumulating in the main and connecting pipe lines, were discharged at intervals as required. The gas, the external and testing room temperatures were recorded hourly. The time required for reversing and the respective pressures (reversing time and pressures) were very carefully recorded and calculated for determining the volumes of heating and holder gas. Samples of coal, coke, and gas were taken regularly and examined. The ovens, which had been in continuous operation for twelve months, were run in a normal manner.

The production of coke was carefully measured as well as the coal through-put.

*Continued from last week.

The Retarding Discs.

The discs were cut from ⅛ in. steel plate and so dimensioned that the square of the diameter of the pipe was twice the square of the orifice in the disc. The side of the orifice, facing the gas, had a sharp edge. The discs were mounted in long and straight leads of the pipe, and the small pressure pipes were fitted as closely as possible to the discs and at equal distances from them. The dimensions of the discs were as follows:

Heating Gas Main:

Inner diameter of main..... 449.5 mm. (D)
Diameter of orifice..... 318.0 mm. (d)

Holder Gas Main:

Inner diameter of main..... 508.0 mm. (D)
Diameter of orifice..... 360.0 mm. (d)

$$D^2 = 2d^2 \quad \left(\text{or } \frac{3.1417 \times d^2}{4} \div \frac{3.1417 \times D^2}{4} = 0.5\right)$$

Calculations

Calculation formula (S. L. Litinsky: Measurements of large gas volumes, Otto Spanner, Leipzig, 1922, S. 154 to 192 and 256).

$$V = C + K.f\sqrt{\frac{2gh}{r}}$$

The respective values are:
V = Volume in cubic meters.
c = constant (see table).
k = constant (see table).
g = ground velocity (9.81 meters per second).
f = cross-section of orifice in square meters.
h = differential pressure in millimeters of water.
r = specific weight of gas in kilograms per cubic meter under conditions in gas main.

The Equation for the Gas Mains

Heating Gas (V).

D_1 = 449.5 millimeters.
d_1 = 318.0 millimeters.
c_1 = 0.0056 (see table).
k_1 = 0.07938 square meters.

$$V_1 \text{ PER SEC.} = 0.0056 + 0.69 \times 0.07938 \times 4.43\sqrt{\frac{h}{r}}$$

$$V_1 \text{ PER HOUR} = 3600\left(0.0056 + 0.69 \times 0.07938 \times 4.43\sqrt{\frac{h}{r}}\right)$$

$$= 873\sqrt{\frac{h}{r}} + 20$$

[1]Becker, "Modern By-Product Coking," "Chemical and Metallurgical Engineering," 1922, Vol. 27, page 878, Fig. 7 (left picture).

Holder Gas V_2.

$D_2 = 508.0$ millimeters.
$d_2 = 360.0$ millimeters.
$c_2 = 0.00695$.
$k_2 = 0.684$.
$f_2 = 0.101736$ square meters.

$$V_2 \text{ PER SEC.} = 0.00695 + 0.684 \times 0.101736 \times 4.43\sqrt{\frac{h}{r}}$$

$$V_2 \text{ PER HR} = 3600\left(0.00695 + 0.684 \times 0.101736 \times 4.43\sqrt{\frac{h}{r}}\right)$$

$$= 1100\sqrt{\frac{h}{r}} \times 25$$

Example of Calculation

The following calculation is based on the first day's observations:

Heating Gas—

Average of manometer readings for 24 hours:

46.3 millimeters alcohol column (10:1).

Temperature in testing room: 25° C., specific weight of alcohol at this temperature = 0.788.

Reading in millimeters water = 3.648.

The following is an example for the determination of the specific weight of gas in accordance with the Bunsen-Schilling method:

1. Gas test, June 8, 7 p. m. till June 9, 4 p. m.—

Time velocity for air, 186.5 seconds.

Time velocity for gas, 116.5 seconds.

Barometer, 758 millimeters.

Temperature, 24° C.

Specific weight of air at 0°/760 millimeters, 1,293 kilograms per cubic meter.

This makes the specific weight of the gas at 24° C. and 758 millimeters

$$= \frac{(116.5)^2}{(186.5)^2} \times 1.293 \times \frac{758}{760} \times \frac{273}{297} = 0.464$$

The temperature of the gas in the mains was 32° C. The static pressure of the gas in the mains was +17 millimeters mercury. The specific weight of the gas under conditions prevailing in the mains therefore was:

$$= 0.464 \times \frac{775}{758} \times \frac{297}{305} = 0.4625 \text{ Kg/m}^3$$

The average specific weight of the gas for the entire first day, at 775 millimeters and 32° C. was 0.461 kilograms per cubic meter.

$$\text{HEATING GAS PER HOUR THEREFORE EQUALS } 873\sqrt{\frac{3.648}{0.461}} + 20$$

$$= 873 \times 2.812 + 20$$

$$= 2474 \text{ m}^3 \text{ (AT 775 mm., 32° C, WET)}$$

Reduction of gas to 0°/760 millimeters and dry state:

Tension of steam at 32° C. and 36 millimeters mercury (775—36) = 739 millimeters.

$$\text{HEATING GAS PER HOUR AT 0° C., 760 mm, DRY} = 2474 \times \frac{739}{760} \times \frac{273}{305} = 2151 \text{ CUBIC METERS}$$

The calculation of the surplus or holder gas proceeded in exactly the same manner as above, resulting in 2268 cubic meters at 760 millimeters, 0° C., dry.

Time for Reversing Considered

The duration of each reversion, which took place every half hour, from normal to maximum pressure was one minute, i. e., two minutes in each hour. Average differential pressure during these two minutes was 5.91 millimeters water.

Mean temperature of the surplus gas = 29° C.

Specific weight of the gas = 0.465.

$$\text{EXTRA GAS PER HOUR} = 1110\sqrt{\frac{5.910}{0.465}} + 25$$

= 4181 m³ (at 775 mm., 29° C., wet).

= 3708 m³ (at 0° C., 760 mm., dry).

Average duration of reversing from maximum to normal pressure = 1.25 minutes for each hour.

Mean differential pressure during these 1.25 minutes = 5.88 millimeters of water.

Extra gas (maximum to normal pressure) per hour

$$= 1110\sqrt{\frac{5.88}{0.465}} + 25$$

= 3979 cu. m. (775 mm., 29° C., wet).

= 3505 cu. m. (760 mm., 0° C., dry).

60 minutes—(2 + 1.25) = 56.75 minutes.

Normal surplus gas per minute = 37.8 cubic meters.

Normal surplus gas per 56.75 minutes = 2145 cubic meters.

Extra surplus gas for 1 minute = 61.8 cubic meters (normal to maximum pressure).

Extra surplus gas for 2 minutes = 123.6 cubic meters (normal to maximum pressure).

Extra surplus gas for 1 minute = 58.4 cubic meters (maximum to normal pressure).

Extra surplus gas for 1.25 minutes = 73.0 cubic meters (maximum to normal pressure).

Total surplus gas per hour:

2145 + 123.6 + 73 = 2342 cubic meters (0° C. 760 mm., dry).

Total gas per hour = 2268 + 2151 = 4419 cubic meters.

The actual heating gas per hour is therefore:

Total (normal and extra surplus gas) = 4419 — 2342 = 2077 cubic meters (0° C, 760 mm., dry).

Total gas for 24 hours = 106,056 cubic meters (0° C., 760 mm., dry).

Surplus gas for 24 hours = 56,208 cubic meters (0° C., 760 mm.), or 53%.

Heating gas for 24 hours = 49,848 cubic meters (0° C., 760 mm.), or 47%.

Minimum calorific value of gas = 3,631 calories (0° C., 760 mm., dry).

Total calories in heating gas = 49.848 × 3631 = 180,998,088 calories.

Total through-put of wet coal in 3 days = 1228.6 tons.

Average moisture of coal on first day = 11.63%.

Through-put of wet coal on first day = 410.8 tons.

Calories used per Kg. wet coal at 11.63% H_2O = 180,998,088 ÷ 410,800 = 440.6 calories.

There is a total of (410.8—363) = 47.8 tons of water to evaporate and to superheat, or 47,800 Kg., or, with a through-put of 363 tons dry coal, 47,800 ÷ 363,000 = 0.132 Kg.

The amount of heat required to raise the temperature of one gram water from normal temperature to the boiling point, and to superheat the steam to oven temperature, can be taken to be 1000 gram calories or one heat unit.

The heat requirement for coking one kilogram of dry coal—(a) including evaporation and superheating of admixed water amounts to 180,998,088 ÷ 363,000 = 498 heat units, (b) less evaporation and superheating of the water, therefore, 498 — 132 = 366 heat units (calories). The observations and calculations on the second and third days of the investigation were carried out in exactly the same manner as described above. The results are recorded in the attached tables.

The average gas pressure in the mains under the ovens during the period of investigation was—on the pusher platform side, 11 to 12 mm., on the coke platform side, 13 to 14 mm., and the average chimney draft 12 millimeters water.

(Sgd.) JOSEPH WEST, Manager.

Powell Duffryn Steam Coal Co., Ltd., Coke Ovens and By-Products Plant, Bargold. Per L. F. Davies.

L. Hurst,

Alfred J. Murray,

Coke and Gas Ovens, Ltd.

TABLE 1

Composition of the Gas

	June 8, '25, 7 p. m. June 9, '25, 4 p. m.	June 9, '25, 4 p. m. June 10, '25, 8 a. m.	June 10, '25, 8 a. m. June 11, '25, 10 a. m.	June 11, '25, 10 a. m. June 11, '25, 7 p. m.
CO_2	4.2	1.3	1.2	1.6
C_nH_m	1.1	1.0	1.0	1.0
O_2	1.0	1.0	1.1	1.1
CO	4.0	2.9	3.9	3.6
H_2	53.8	57.1	57.8	57.6
CH_4	22.3	22.9	21.4	21.4
N_2	13.6	13.8	13.6	13.7
Min. Calorific Value C°/760 mm., dry....	3621	3705	3625	3611

TABLE 2

General Observations

Date	Surplus Gas: Diff. Pressure in mm alcohol 10:1	Surplus Gas: Gas temp.	Surplus Gas: Room temp.	Heating Gas: Diff. Pressure	Heating Gas: Gas temp.	Heating Gas: Room temp.	Static Super Pressure Heating Surplus Gas in mm Hg	Barometer reading in mm Hg	Spec. Weight of Gas in kg/m³	Outside temperature
June 8-9, 1925	30.7	29	24	46.3	32	25	17	758	0.461 775/32°	22
June 9-10 1925	29.74	31	25	47.9	33	25	17	760	0.451 777/33°	23.7
June 10-11 1925	27.28	32	25	49.4	34	26	17	760	0.4567 777/34°	24.5

TABLE 3

Date	Total Gas 0°/760mm/ dry	Heating Gas 0°/760mm/ dry	Surplus Gas 0°/760mm/ dry	Surplus in % of Total Gas	Average N_2 of Gas	Low Cal. 0°/760mm/ dry	Calorific Value of Total Heating Gas
June 8-9, 1925	106,056	49,848	56,208	53	13.6	3631	180,998,088
June 9-10, 1925	106,008	50,382	55,628	52.5	13.7	3668	184,801,176
June 10-11, 1925	104,448	51,584	52,864	50.6	13.6	3620	186,734,080
	105,504	50,604	54,900	52.0	13.63	3639	184,177,781

TABLE 4

Date	Coal Through-put Wet in t.	Moisture of Coal	Coal Through-put Dry in t.	Heat Requirement for coking 1 Kg. Coal wet	Heat Requirement for coking 1 Kg. Coal dry	Number of Ovens Pushed	m³ Gas per t. Dry Coal 0°/760 and Dry	Coking Time Hrs.	Chim. Temp.	Composition of Waste Gases
June 8-9, 1925	410.8	11.91	363	440.6	366	45	with a	26.5	230°	
June 9-10, 1925	407.7	10.94	363	453.3	386	45	content of	26.5		CO_2=8.6%
June 10-11 1925	410.1	11.49	363	455.3	388	45	13.63% Nitrogen	26.5	280°	O_2=2.0%
Average—Resp. Total		11.45	1089	449.7	380	135	291 m³	26.5	255°	

Applied Public Relations*

Employee contact patent factor—Accidents and asphyxiations are discussed

Don C. Ray

Pacific Gas & Electric Co.

VOLUMES have been written and innumerable addresses and talks have been made on the subject of Public Relations, especially as they affect the field of public utility operation. In nearly every issue of periodicals or magazines devoted to the various utilities, constructive and informative articles are appearing in which we are told of ways and means of encouraging a better understanding on the part of the Public of what the utilities are actually doing; of the responsibilities assumed by virtue of certain rights and privileges granted them by the public; of how the utilities are discharging those responsibilities to the best interests of the public, and that in the dispensation of adequate and necessary service at just and reasonable rates, the utilities are an essential and important factor in the social and economic growth and development of the nation. Newspapers carry a large amount of institutional or good will advertising designed to acquaint the public with the objects and ideals of our respective industries. Public utility information committees have been formed in a large number of the States and generally they are doing a very excellent and useful work in securing pertinent and dependable data on public utility administration, and by means of their own publications or through the press and other media, are disseminating this data to the mutual advantage of the public and the utilities.

Outstanding men in the public utility industry have either initiated or given indorsement to the movements outlined, which is to say that the subject of public relations is conceded to be an all important one and that the continued stability and success of our industry is primarily dependent upon the favorable attitude of the consuming public.

Unique Service Rendered by Utilities

All of this is as it should be. The public utilities of this nation are rendering a service not even remotely approached by those of any other country in the world. The industrial supremacy of the United States, while not to be credited directly or solely to public utility service, could not have been attained without it. The public utilities, privately owned and operated, by anticipating and keeping ahead of the demands of industry have made this wonderful development possible. The public should and must know this, and the method now being followed in telling the true story of the public utilities will be fruitful of results beneficial alike to the utilities and the public whom they serve.

Such plans as have been briefly outlined, are of necessity carried on by executives and department heads directing public relations activities, numerically a very small proportion of those engaged in the public utility business. Excellent progress is being made but the potential accomplishments of such efforts will not be fully realized unless and until each and every employee in our industry assumes his individual responsibility and does his part in the furtherance of this important work.

The Function of the Utility Personnel

The spoken word or written article cannot alone accomplish the desired end. The audience or the reader, and by this I mean the public, must be in a receptive attitude. Here is where the organization personnel of our industry has its opportunity; here is where we, as employees, are privileged to perform our respective duties in such a manner that the service policies of our executives, as expressed in the spoken and written word, are properly interpreted to the public. People are of course concerned in our account of what we have done for them, in promises of what we are going to do, but they are much more vitally concerned in what we are doing and have actually done. They are much more likely to believe in our statements and promises, if our record of past and present performance has established us in their confidence. Words are impotent unless backed by deeds. It is the practical application of our public relations policies that in the final analysis will gain for us either the favorable or unfavorable attitude of the public. If properly applied, reaction will be favorable for, in the main, our policies are unquestionably right.

Applied public relations is essentially a function of the employee organization. In the daily contacts with consumers and the public, the employee represents, in fact is, the company. He should be entirely conversant with his company's aims and ideals; he should be in possession of all essential information it is desired the consumer should know; he should be imbued with the true spirit of service; he should know that a public utility can justify itself only in so far as it renders a beneficial service to society; he should know that his ultimate boss is the consumer and that his own self interest demands that the boss be satisfied. Supported by a manage-

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* Prepared for Pacific Coast Gas Association and read at San Diego, Feb. 19, 1926, and at Tucson, March 17, 1926.

ment that has provided modern and adequate physical facilities, the employee should know that this boss (the public) will be satisfied and satisfied only when the service rendered him is accompanied with honest treatment, courteous demeanor, and a proper consideration for the rights and opinions of others.

The Golden Rule the Guiding Star

The employee should know that if he is to get along well with the consumers he must be in harmonious relations with his fellow employee. Courtesy and consideration for others, like charity, begins at home. The Golden Rule, which should be the guiding star of every public utility employee, does not discriminate between men, nor as to the position they occupy. Give me an organization of employees who have developed a true spirit of friendly cooperation, who are honest and truthful, and who have thoughtful consideration for one another, and I will present you with an organization which, if your policies are right, will attack and solve successively any public relations problem with which you may be confronted.

The trouble is—no such organization exists. Such should, however, be the objective of every man engaged in the direction of public relations activities. The goal of perfection may never be reached but my observations have convinced me that there is much room for improvement in this direction. Consistent and persistent effort along this line is desirable.

Employees Should Feel Sincerity of Purpose

When speaking of employees the term is not confined to what is ordinarily referred to as the "rank and file"; it comprehends every man and woman in the organization from the highest executive officer to the man in the ditch. The use of the word employee in the usually restricted sense is a fault altogether too prevalent and, in my opinion, is a very definite reason why the organization, as a whole does not function as it should. Initiating public relation policies and instructing employees in the correct interpretation and application of those policies, is a relatively simple matter. The difficulty lies in impressing the rank and file—those of the organization that make the major number of actual contacts with the public—with your sincerity of purpose, with the propriety of the policies promoted, and with the fact that their interests as well as those of the company by whom they are employed, is dependent upon the conscientious observance of those policies. Again this cannot and is not done by mere words. These men will, to a considerable extent, emulate the example of their superiors whether those superiors be foremen, superintendents, managers, department heads, or higher executives. Men will follow a leader to extremes, but they will fall far short of the goal in the absence of leadership or if the pressure is exerted with a driving rather than a pulling force.

Dealing With Flesh and Blood

Any executive, and by that I refer to any one directing the efforts of one or more subordinates, should realize that he is dealing with flesh and blood men, real human beings, and should know the psychological truth that the reaction of these men will almost invariably be identical with the impressions received by them. If it is desired that your subordinate be courteous, be courteous to him; if you wish him truthful and honest, exhibit those virtues in your dealings with him; if you expect thoughtful consideration, be you thoughtful and considerate of him; and if you want loyalty, and that is what you are most urgently in need of, you must practice loyalty toward him. Speaking of loyalty, I am reminded of a statement made by an eastern executive eminently successful in industry who said, "Many executives make the mistake of believing that loyalty works but one way—from the bottom up. Either it works both ways or it works not at all and—it begins at the top. Loyalty is secured by injecting the human element into industry and to humanize industry you must always bear in mind that the other fellow has feelings, hopes, aspirations, desires, and rights similar to your own."

Substantially every man here today is an executive in the sense in which I have used that term. How many of you subscribe to the doctrine just stated and, what is more to the point, how many endeavor to practice that doctrine in the daily performance of your particular duties? In my humble judgment, upon the affirmative answer to that question, depends the degree to which the respective company organizations of our industry will approach their possible ultimate efficiency in the rendition of service which always underlies and definitely determines your public relations.

Explosions and Asphyxiations

At this point I want to digress slightly from my subject to discuss a problem that is a perennial menace to the gas industry, both as to sales and public relations. It is the source of much unfavorable publicity to gas companies, a great deal of which is not deserved it is true, but which, nevertheless, has an adverse effect on the industry. The reference, as you have probably surmised, is to explosions and asphyxiations. I shall attempt to briefly discuss the subject from a public relations viewpoint.

Each and every accident resulting from the use or rather the abuse of gas should be immediately and thoroughly investigated by the gas company. The results of those investigations should be recorded in strict conformity with the developed facts. Definite recommendations for prevention of recurring similar accidents should, where possible, be given. When fatalities or serious damages obtain, publicity is certain to follow. Close contact should be maintained with newspapers to insure against unfair and unwarranted press reports.

The Los Angeles Investigation

A laudable exception to lack of proper investigation of asphyxiation was that made as a result of the rather serious conditions obtaining in the city of Los Angeles last winter. A committee headed by H. L. Masser, Gas Engineer, Los Angeles Gas and Electric Corporation, made a very thorough survey and report of this situation and has submitted recommendations which if adopted will undoubtedly be effective in accident prevention. During the period covered by the report, 42 asphyxiations occurred in Los Angeles, 28 of which were fatal. Incidentally the report shows that most of these accidents were preventable. It is to the prevention of all preventable accidents that the gas industry and particularly the gas companies should address themselves.

Preventative asphyxiations and explosions result from various causes such as improper use of appliances, use of appliances improperly designed or adjusted, lack of proper room ventilation, etc. Few are directly attributable to the gas company.

This however should not encourage an apathetic attitude on the part of the gas company. When all is said and done—it is the gas company's gas that kills or explodes, and the gas company is altogether too frequently and very often unjustly charged with the responsibility for the accident and has to sustain the brunt of most of the unfavorable resultant publicity. Obviously it is good business sense for the gas company to exert every effort that will minimize accidents of any and all character incident to its operations and which will tend to extricate it from an unenviable position in which it has been placed through causes over which it has little or no control.

Safe Appliances Demanded

Manufacturers who persist in putting out improperly designed appliances, dealers who handle them, and contractors or plumbers who cheapen installation costs as a means to secure business, are a real liability to the gas industry and to the purchaser of equipment. The gas company should not temporize with, nor tolerate such practices. We should insist that the manufacture, sale and installation of all gas appliances be conducted along approved safety standards, and if these people cannot be induced to change their methods we should endeavor to eliminate them as in the case of any other menace to the health and safety of the community.

We should not become hysterical over the accident situation. As a matter of fact the number of accidents is in no way alarming. The Secretary of our Association reports that for 1925 accidents in all Pacific Coast Gas Company territory, minor cases excepted, totaled only 170. Estimated total people served, six million, or one accident to approximately 35,000 population. According to the Masser report the death rate due to asphyxiation in Los Angeles during the winter of 1924-25 was about one person to every 60,000 population, not a particularly high rate when compared with accidents from other sources. One thing which tends to focus the public mind on asphyxiation is the large number of suicides by the so-called gas route. It appears to be a popular method in use by those who are determined to "shuffle off this mortal soil." Perhaps our advertisements that gas is clean, quick, and convenient is taken too literally by those who unintentionally cast an odium on our industry in the performance of their last earthly act. Records from the Coroner's office covering the period from June 1924 to July 1925, show that of all deaths from asphyxiation in San Francisco, 63.9% were suicides. These are, of course, non-preventable but nevertheless reflect adversely on gas as a safe commodity.

Accidents Are Preventable

All in all the number of serious and fatal gas accidents is not relatively large. The important point to bear in mind is that many of them are preventable. As stated before, no matter what the cause, it is the gas company's gas that injures or kills and it is up to the gas industry as a protective measure if for no other reason, to take leadership in the movement that will effectually, and I trust speedily, eradicate all causes from which preventable gas accidents occur.

It should never be said that the gas industry has left a stone unturned to make the use of gas absolutely safe. With testing laboratories and appliance certification and installation ordinances, we will doubtless remove the source of many accidents. Educational work now being carried on by most gas companies should be continued and expanded, and the co-operation of the manufacturer, dealer, and installer of appliances in this essential work should be solicited and encouraged. Better education of the user of gas is of paramount importance. A well devised service manual distributed to all consumers is an excellent medium for this purpose. Excerpts from such a manual can occasionally be used to advantage in display advertising.

Employee Contact Most Effective Medium

And here again, and this brings me back to the subject of this paper, the most effective way of educating the consumer is through the employee contact. Every employee who in any way has anything to do with the establishment and maintenance of service or appliances, should be thoroughly versed in the proper method of gas utilization and the dangers attendant upon its improper use. He should be possessed of sufficient judgment and discretion to furnish intelligent advice to the consumer, and he should be so supervised as to insure against the omission of any necessary action required to safeguard the use of gas.

Public Relations is a very comprehensive subject. It touches every branch of the industry, as well as every one engaged in it. I have in no way attempted its full discussion but rather have confined this paper to some of the things which I believe to be

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Gas Appliance Week in California

Camp Fire Girls write advertisements on gas appliances

Charles W. Geiger

GAS Appliance week was observed April 12 to 17, throughout the State of California with demonstrations and exhibitions of an educational nature. The work was sponsored by the Gas Appliance Society of California.

Dealers, manufacturers, clubs and other groups were brought into an intensive six-day program designed to educate the public and especially the housewife on the economy, efficiency, safety, cleanliness, ease and speed of gas appliances.

Although the week included many uses of gas not strictly within the realm of the housewife, much of the week's effort was addressed to feminine audiences. In San Francisco there was city-wide observance of Gas Appliance week by dealers and other interested groups. One of the most novel features was the introduction of the Campfire Girls to the movement. Some fifteen members of the local Campfire Girls were detailed to as many stores and assigned to the task of the preparation of advertising "copy" on the various uses and advantages of gas appliances.

Interest Centered Around Kitchen

Much of the interest of Gas Appliance week centered around the kitchen. In several of the stores there were modernly equipped kitchens, under the direction of culinary artists skilled not only in the preparation of many attractive dishes but also in the ways and means of effecting economies.

In the Advisory Kitchen which has been installed in the Emporium Department store, Miss Ann Williamson, Home Adviser and Economist, gave lectures on heat control and conducted actual cooking with gas, under heat control. One of the accompanying photos shows Miss Williamson giving a demonstration of cooking with gas to Miss Ruth Sabichi. Another photo shows a demonstration of a gas fired pressure cooker, gas being piped to every column in household section of store.

Cooking Program

The following was the program carried out in the Advisory Kitchen by Miss Williamson:

Monday, "Cake Baking on the Wedgewood."
Tuesday, "Full Meal Cooked on Detroit Jewel."
Wednesday, "Oven Canning on the Wedgewood."
Thursday, "Oven Baking on the Detroit Jewel."
Friday, "Full Meal Cooked on the Wedgewood."
Saturday, "Pastry Baking on the Detroit Jewel."

Manufacturers of gas appliances declare that the average kitchen is a symbol of inefficiency. This results not only in added maintenance and operation of the home, but also consumes the major portion of the housewife's time, to the detriment of the children and other activities equally important.

The modern kitchen is likened to a working living room, where labor is at a minimum. The object of Gas Appliance week is largely educational, in order that the public may be awakened to the advantages of a properly equipped home. It is estimated that about one-half of the average income escapes through the kitchen, and that modern appliances can greatly curtail present losses.

It is declared that the modern gas range, water heater, and gas-fired appliances for heating the home and conducting the laundry are vastly cheaper to operate than any of the old-time appliances, and that they not only save in fuel but also in time.

The bathroom was another point of interest featured during Gas Appliance week.

Special Advertising

During Gas Appliance week the newspaper advertisements for the Emporium were written by Miss Lily Chloupek, literary editor of the "Pathfinder," official Camp Fire Girls' magazine. The advertisements for Nathan Dohrmann Co. were written by Miss Ruth Elkus, Wood gatherer of the Kleka Tasmi Camp fire, Camp Fire Girls. Miss May Tormey wrote the advertisements for the Eastern Outfitting Company, and Miss Agnes Silver of the Girls' High School, and an Oeleoh Camp Fire girl, wrote the advertisements for Lachman Bros.

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PAPER DRYING INDUSTRY FINDS GAS IDEAL FUEL

That gas fuel can be used extensively to take the place of steam for commercial and industrial drying is freely predicted by fuel engineers who are studying new heating methods.

Thanks to the use of city gas, paper manufacturers have finally caught up with the demand for finished paper caused by the enormous increase in advertising circulars and other printed matter of a similar character.

The installation of gas-fired dryers has resulted in a lower cost of finishing paper, as well as increased production, according to engineers who have reported their observations to the American Gas Association.

When paper is "finished," to give it a lusterlike surface, a thin coating of varnish is applied, which was formerly dried by steam. The new method dries the varnish by the radiation of gas heat reflected from the sides of a box into the dryer proper. It has also been found that a more uniform result is thus obtained.

Industrial Gas Sales Promotion

Adequate rate structures essential for future progress

T. V. Purcell

Vice-President, The Peoples Gas Light and Coke Company, Chicago, Illinois

THE gas business is at a parting of the ways. We must abandon some old traditions if we are to have any progress.

One of the most fundamental of these is the idea that we can sell all classes of business with one rate—and that a poorly constructed one. Our industry is missing huge blocks of business to which it is legitimately entitled, and it cannot possibly take on these great loads until gas companies throughout the country recognize the immediate necessity for action.

Let us face the facts squarely:

The gas industry has never offered rates adapted to secure a maximum use of its invested capital.

It has not developed equipment for the utilization of gas in large volumes.

Responsibility to Domestic Customers

Gas companies have a duty to discharge in behalf of the domestic customer.

The fundamental basis of our franchises is service to the domestic load; and we are so anxious to keep the peace with the domestic customers that we are reluctant to ask commissions to approve of practical rates to larger customers—rates that would be profitable to the companies and which would have the effect of actually reducing the cost to domestic customers.

But the domestic customer pays a higher rate today because gas companies have failed in their stewardship.

Conditions Affecting the Domestic Load

Why does history reveal? When we began business, we sold lighting only; but as the program advanced, the conditions changed. Electric lighting came into the field and gave additional conveniences. People began to use it even though more expensive—and that is history repeating itself.

The people do not wait until the new commodity or service is as cheap as the old if it offers greater convenience or satisfaction.

Then, fortunately for the industry, the gas range came into use; and as a convenience it was so much better than coal or anything else available, that it was adopted at once. It developed then that the gas cooking load became greater than the lighting load. And, now, the cooking load is slipping.

It is true that total sales show a fair increase and that there is some increase in sales per capita, but the per capita increase is due solely to hotel, restaurant and industrial business. In 3, 5 and 10 light meters the average consumption is decreasing.

Living habits have changed—we have the modern "cliff dwellers," who dine much in restaurants and cafeterias—who patronize bakeries and delicatessens. There are thousands of such families. There is the tendency to send laundry out, to buy bread. There are electric table and household appliances by the score.

This is not a healthy condition. We hope to be able to nurse the domestic load back to health by our home service and other activities. But there is no denying that there are many unfavorable influences affecting this load.

Failure of Companies to Adopt Scientific Rates

Now, why haven't gas companies gone out for rates? The principles of rate making have been well understood for many years and the failure of gas companies to adopt scientific methods of rate making can be attributed only to lack of appreciation of the value of such rates in developing the business. As far back as 1900 Mr. Henry L. Doherty began urging the gas industry to consider correct principles of rate making. Many excellent papers have been written expounding these principles; and the Rate Structure Committee of the American Gas Association has contributed very comprehensive rate studies. Notwithstanding this, the fact remains that little progress has been made in the gas industry in this most important matter, and the great majority of gas companies continue to attempt to operate on obsolete time-worn rate schedules.

The practical application of scientific rates has been one of the greatest factors in the development of the electric utility business. Almost from the beginning, the electric industry has constructed rates on the basis of analyzed costs making it possible to compete with other fuels, and to take on many loads of great diversity.

The few gas companies that have adopted similar systems of differential rates have also had very gratifying results; but the gas industry as a whole has a long way to go in establishing rates that will encourage a greater use of its equipment.

Industrial Field Limited by High Rates

An analysis of the 1926 "Rate List" shows that there are 18 cities in the United States where gas is available to industrial concerns at a rate of 60c or lower and in many instances these low rates are of very recent adoption.

The value of the goods manufactured in these 18 cities is only 13% of the value of all of the goods manufactured in the United States. In other words, 87% of all the manufacturing of the country is done in districts where the price of gas prohibits its use and where apparently no real effort is being made to offer rates that will get the business.

(Continued on page 364)

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* Presented before the Convention of Illinois Gas Association, March 17 and 18, 1926, Springfield, Illinois.

GAS MERCHANDISING

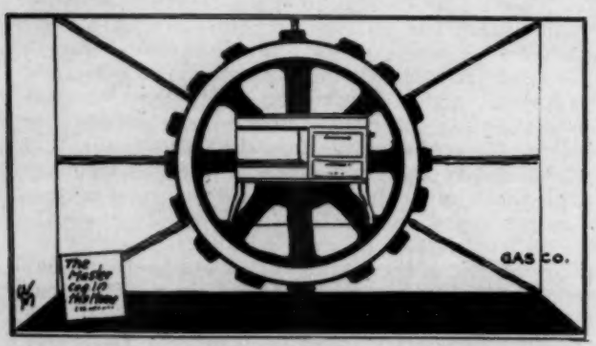
Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

SELLING THE COMPANY TO THE PEOPLE

ONE of the Southern operating companies has adopted the policy of having a house warming every time they purchase a new property. This company, which, in a measure, has standardized its methods of appliance merchandising and office arrangement, upon acquiring a new property, sends out a new business man and demonstrator who works out the details for a grand opening. After the office and store room have been overhauled and the new appliances arranged, invitations are sent to all customers to visit the new office,



and attend a cooking demonstration. The big idea back of this is to acquaint the customers with the personnel of the new company and its method of doing business. This idea might be enlarged upon and used by any company, new or old. What better way is there to get the good will of the customer than to invite him to the store to partake of some well-cooked food? Of course, while he is there, it is up to the sales force to see to it that he inspects all the new appliances and is told how easy they are to possess, if purchased on the easy payment plan offered by the company.

HOW ARE YOU GETTING ALONG WITH YOUR APPROACH?

WE often wonder how the average salesman gets along with his "cut-and-dried" approach, the one he has learned from any number of books on the subject of selling. How does the approach work on "the masses" and how does he get away with it on the classes? As we view the bunk about the subconscious mind operation, the stereotyped "approach" and the "cut-and-dried" closing speech, we do not wonder that more and more women—and men—say: "Well, we have just got so we do not let them in," when they are asked if there are many men selling house-to-house these days. Of course, house-to-house selling, like time payment selling, has been very much overworked in the past years, yet we are of the opinion that the pre-digested sales talk has done more to disgust folks than even a foot in the door, so far as the house-to-house salesman is concerned. There is nothing quite so important as faith in the merchandise he sells, plus a thorough knowledge of the product, its uses, the material from which it is made, what it will do for the customer, what it will not do, and where it will fit into his needs.

As The Journal Views It

TAKING CARE OF THE PEAK LOAD

The peak load has been a real bugbear to the gas engineer in charge of manufacturing operations. It has been even more than this, for it has had a very potent effect in influencing the manner in which new business, whether it be industrial or house heating, has been considered by gas companies. We have often heard of the argument raised against the house heating load, based on the fact that it would be a peak load under certain conditions and the same reasoning has been used at times in studying the industrial load. There can be but little question that, if it were not for the fact that there is such a thing as a peak load and that taking care of it involves such difficulties, progress of gas, both in the house heating and industrial fields, would have been must faster and more extensive, than it has been up to date.

It is a real commentary on the ingenuity and the progressive spirit prevailing in the gas industry today, that progress has been made in both these fields, in spite of the difficulties and disadvantages occasioned by the peak load. It would appear as if the gas men had determined that they were going to get the business that is rightly theirs and hold it and make a fair profit on it, notwithstanding peak load conditions.

But there must be some method of gas manufacture, which is best suited for supplying gas under peak load conditions. By this is meant that there must be some particular process, which is most efficient both from a technical and an economical standpoint, that can be used to supply the gas at the point of peak load. It was therefore with a great deal of satisfaction that we have been able to publish recently, an article by Mr. E. L. Hall of the Portland Gas and Coke Company, relating to gas manufacture for peak load conditions.

Those of our readers, who have studied this article, will have seen that Mr. Hall's solution is the use of oil gas and that he has been able to demonstrate his theory practically by the example of his own operations in the Portland gas plant.

Mr. Hall frankly indicated that his conclusions were mainly based on theoretical considerations. He has emphasized that this is a subject of prime importance and one that should have the interest of all gas engineers, who are concerned with the manufacturing operations in the gas plant. He has asked for criticisms and for suggestions from other gas men who are interested.

We wish to take this opportunity again to ask our readers, who are interested in this phase of the gas business, to send us their criticisms and suggestions, which we shall be glad to publish so that a veritable symposium on gas manufacture for peak load conditions may appear in published form.

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HOUSE HEATING PUBLICITY

The fact that gas can be used to a great advantage as a house heating fuel is being recognized all over the country. Not only have gas men been thoroughly convinced of the value of this business, but people in general are coming to look upon gas as the ultimate solution of the house heating problem. The recent coal strike and the necessity of using soft coal or freezing has brought the advantages of gaseous fuel straight home to the dwellers in the cities of the East. He has had it demonstrated to him rather conclusively and concretely that the only way in which soft coal can be used conveniently, hygienically and effectively for house heating is first to convert it into gas in the gas works and then to employ the manufactured gaseous product as the fuel in the furnace.

Newspaper editors are also coming to look with favor upon gaseous fuel and the gas industry in general. This was not always so, but bygone troubles are now forgotten and it is well to let them remain so. It is accordingly interesting to read an editorial comment entitled "Gas Provides For Early Day Comfort," published in a Providence, R. I., newspaper. This item was such a good advertisement value for gas as a house heating fuel, that it is reproduced in full below.

"Early morning comfort!

"We are all convinced that one of the chief functions of a home is to get the family started right in the morning. And the conditioning factor in such a program is a comfortably heated house.

"You can tell by the very look on the faces of men and children as they come from their homes in the morning the conditions that exist there. If the man appears with a clean-shaven, immaculate look and the kind of smile that says "All's well with the world," it takes little imagination to picture the workings of his home, especially if it happens to be a cold, disagreeable morning.

"In the first place, he doubtless rose to a warm bedroom. In a very few minutes there was ample hot water for washing and shaving. By the time his dressing was completed an appetizing breakfast was ready, and his wife and children were there, fresh and smiling, to enjoy it with him.

"This scene described can occur only in a modern, efficient way. Take, on the other hand, the case of the man upon whom devolves the task of caring for his own furnace. The family wakes on a cold morning to cold rooms. The first task is to see to the furnace, but even by doing so it is impossible to get the steam up in time to have a comfortable house for breakfast. If he has any trouble with the fire, he may have to omit shaving, and grab his breakfast on the run. What a way to start the day!

"Which of these pictures most nearly describes the condition of your home? Why be a slave to a furnace when there exists such a wonderful solution to all heating problems as the Ideal gas boiler, the object of an introductory campaign by the Providence Gas Company? Don't miss their window display, which shows these wonderful heaters."

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APPLIED PUBLIC RELATIONS

(Continued from page 359)

pertinent to the subject and which it is hoped will be of interest and possible benefit to the members of this Association.

Conclusion

The points I have endeavored to make are that the subject of Public Relations, all important as it is, is neither technical nor specially complicated; that its purpose is to establish a better understanding between the public utilities and the consuming public; that its proper and constructive development is to a large degree, dependent upon a thoroughly informed organization; that each and every member of that organization has and must assume definite responsibility in the interpretation of company policies, and that in the discharge of this responsibility common sense and good business ethics should invariably be applied. As executives we must ourselves do those things which we ask and expect of our employees. In other words we must practice what we preach.

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INDUSTRIAL GAS SALES PROMOTION

(Continued from page 361)

Classes of Industrial Customers

At this point it might be well to consider how the industrial business may be divided into, say, three classes. There are certain heating operations, such as soldering, brazing, vulcanizing, linotyping, singeing, etc., where gas is indispensable, and can be sold at almost any price. Business of this kind comes without any particular sales effort. It may be readily obtainable even at domestic rates.

There is a second class of heating processes, such as japanning, melting of soft metals, core baking, and many others, which when conducted upon a small scale, can in general be accomplished economically with city gas, provided that the gas is obtainable at a rate of about 75c. In this class good salesmanship will be required and all the collateral advantages of gas must be taken into account.

The third division comprises practically all of the operations listed in the second division when these operations are conducted on a large scale, and many others, such as heavy forging, malleabilizing, brick burning, vitreous enameling, ceramic kilns, lime burning, asphalt melting, and cracker baking. In order to replace the various crude fuels that are now used for these processes it is necessary to sell gas at prices that will compete—and that means at prices lower than 60c. In fact, for some processes the prices must be reduced to a point that will only be justified by an off-peak or dump contract.

Our Great Opportunity

It is in this third class that our great opportunity lies. In volume it is many times greater than the other two classes and although the margin per thousand, at the prices that must be offered will be narrow, there will be a very substantial increase in our total net revenue because of the enormous volume of this prospective business.

Therefore, gas companies must get away from the idea that any fixed price will be applicable to the whole field of industrial sales. The prices must be suited to the particular use to which the gas is to be put. We plead, therefore, for the practical application of scientific rates.

Need of Research and Development of Equipment

This alone is not enough, however. We must develop suitable equipment.

Because of high gas rates, there is not now, nor has there ever been, a field for the sale of industrial gas equipment large enough to warrant manufacturers going into this business.

(Continued on page 366)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 116

Combustion

Soft Coals

The next coal in order of age is bituminous coal. There are quite a large number of coals that are classed under this heading or under the heading of sub-bituminous and semi-bituminous coal as well. Sub-bituminous coal lies between bituminous coal proper and lignite, and semi-bituminous coal lies between a semi-anthracite and bituminous coal. It is a very hard matter to distinguish between these coals, and particularly between some of the low grade sub-bituminous coals and the high grade lignites. The most distinguishing feature, however, of the bituminous coals is the high percentage of volatile matter contained in them, but, perhaps, the best means of differentiating between the various soft coals is the character of the coke that is obtained from them and the nature of the flame with which they burn.

Sub-Bituminous Coals

Sub-bituminous coals, as has been mentioned, are a form of coal that lies between the brown woody lignite and bituminous coal. They are in reality, a black lignite coal for they have a glossy, black color which distinguishes them particularly from lignites. Sub-bituminous coals are free from woody struc-

ture, which is another important characteristic. On the other hand they can be distinguished from the true bituminous coals by the fact that they lose moisture and crumble when subjected to weathering. These coals differ very materially amongst each other, both in appearances and in chemical composition. Large amounts of these coals are found in Wyoming. An analysis of a typical Wyoming supply bituminous coal is given below. The moisture in this coal usually varies between 7 to 25 per cent. and the ash from 3 to 30 per cent.

	Per Cent.
Volatile matter	40.51
Fixed carbon	59.49
Sulphur	0.45
Hydrogen	4.81
Carbon (total)	76.61
Nitrogen	1.10
Oxygen	17.03
Heating value	13,030 B. t. u. per lb.

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(Continued from page 366)

This lack of suitable equipment is a subject of vital importance to every one in any way connected with the gas business, because, in effect, it means that many very important avenues for increasing the industrial load are closed.

We have seen how few cities there are in the United States that have rates to get industrial gas. These cities are so few that the manufacturers of electric furnaces have had a free field with no gas competition.

Wherever electricity is sold, industrial consumers can secure practical rates; and this has provided the manufacturer of electric furnaces with a wonderful market for his product. This, in turn, has given the electric furnace manufacturer ample funds for necessary research and development work.

On the other hand, the gas industrial field has suffered because it has not had available suitable equipment for the utilization of gas in large volumes.

Until this situation is recognized by at least a majority of gas companies in the industrial areas, and until rates are made effective that will create a demand for industrial gas equipment, it cannot be expected either that the present manufacturers will spend money in development, or that other furnace companies will become interested in the gas business.

It would seem, therefore, that any campaign of national advertising or of subsidized research and development, can only to a very limited extent create a better condition. What is really needed is an organized program of education for the gas companies themselves and for the regulatory bodies having control over rates to the end that gas will be sold for industrial purposes all over the country at competitive rates.

Justification of Lower Rates for Industrial Gas

Our plea for lower rates for industrial gas will be met by the questions: Can we afford it? Will the commissions permit it?

Of course we cannot afford to sell industrial gas at lower rates if we assume that the rate must include a pro rata share of all the fixed charges. But why should we make any such assumption?

Let us look a bit further into the cooking load. It has certain peculiar characteristics. The maximum hour in our business, at present, is on Thanksgiving Day, from twelve to one, and there is a decided peak. The reason is obvious. But to be ready to serve that hour, on Thanksgiving Day, from twelve to one, we must have a distribution system enormous enough to serve the demands of that hour.

Therefore, our cooking peak on that Thursday determines the distribution investment imperatively needed by our domestic customers.

Now, a study of the curves showing the output of gas for the days of the year makes very clear the fact that this great distribution system—necessitated by the Thanksgiving rush—is idle for the greater part of the time, an obvious economic weakness.

We are not doing our full duty to our domestic customers unless we try to utilize this idle capacity by taking on business not necessarily at the same price, but by establishing a price at which the business may be secured, provided it is not lower than cost.

In other words, we can take on enormous volumes of industrial business with practically no additional outlay for distribution equipment. This means there will be profit in the business with the distribution overhead omitted from the price. And, with part or all of the distribution demand costs omitted from the price, we shall be able to demonstrate in every factory where there is a heating process that "you *can* do it better with gas."

Competitive Rates Approved by Commissions

As to the attitude of the commissions, there have been many decisions indicating that commissions generally have adopted the principle that a price may be fixed for new competitive business based on the additional cost of the additional business. In fact, decisions have implied that it is the duty of the utility to take on new competitive business at any price above cost, provided the ultimate effect will be to reduce the cost to the regular customers of the utility.

What Can Be Done?

The future of the industry presents a problem of vital importance; and the situation would forbode grave consequences, were it not for the fact that the manifold uses for gas are constantly entering an ever-widening sphere. This is true to such an extent that a limit to the use of gas is not even within the shadow of thought.

However, to obtain this prospective business is quite out of the question with poorly designed rates that are not competitive and which do not reflect true costs. Gas companies should give this matter earnest consideration and take such measures as may be practicable to bring to the attention of the public utility commissions the advantages to customers and companies alike of providing rates that will enable them to compete for large consumption business.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

GAS MAKING PROCESS

AIR is blown through the incandescent coke and the gas that is made in this manner is drawn out of the producer in such a manner that it does not pass through the layer of coal. Hence this gas can be used in recuperator chambers for heating purposes. In these chambers, the coal is partially coked. The gas being mixed with the water gas, and excess of steam obtained from the after-treatment of the coke with steam, which is superheated in the recuperator chambers.—French Patent No. 599,598.

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PURIFYING GAS-HOUSE LIQUOR

GAS-HOUSE liquor is purified for hydrometallurgical use by charging this solvent menstruum with zinc oxide in amount sufficient to react on the ammonium sulphide contained, freeing the combined ammonia with the formation of zinc sulphide, separating the purified gas-house liquor from the zinc sulphide so formed and recovering the liquid in its resulting condition (U. S. Patent, No. 1573169).

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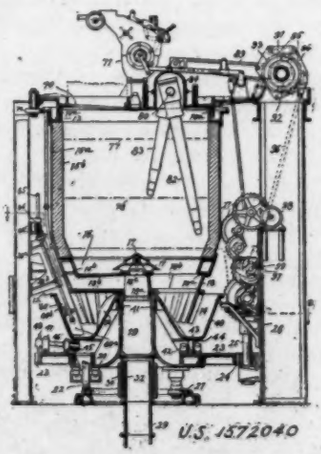
GAS PRODUCER

A GAS producer consisting of a producer body and an ash receptable beneath the same both rotatably mounted is patented in United States Patent No. 1572040. There are also provided movement imparting and controlling mechanisms for

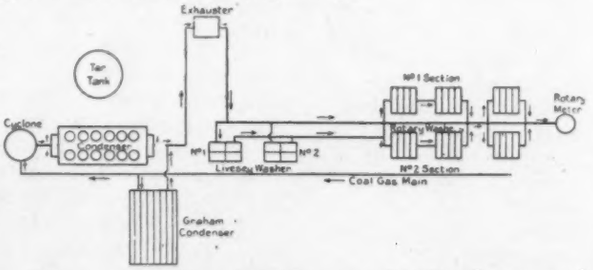


causing both parts to rotate when the producer is in operation and operating automatically to cause one part to make a greater number of revolutions than the other in a given time.

CONDENSATION AND WET PURIFICATION

AN INVESTIGATION was made, as reported in the Gas World, 1926, pages 102 to 104, to determine the relations between condensation and wet purification of coal gas. It was stated that these phenomena must be considered to commence in hydraulic mains. The particular object of the investigation was to study the more definite operations of the purification plants located outside the retort houses and installed for this specific purpose.

The plant in question produced coal gas in a Glover-West continuous vertical retort installation, the steaming of the charge being continuous at 15 lbs. per square inch. The temperature in the combustion chamber was 1,180° C. and the throughput per retort was 2.5 tons per day.



The purification plant is seen in the figure and was designed to treat 5,000,000 tons per day.

The results of the investigation show that the type and quality of the coals in use, temperature of carbonization, and atmospheric temperatures, etc., were potent factors. It was also found that the liquors from vertical retorts contain larger proportions of phenols, thiocyanates, thiosulphates, etc., which are capable of absorbing oxygen.

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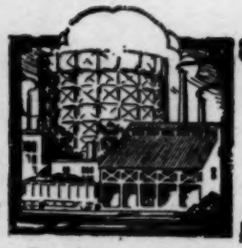
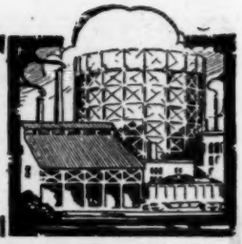
EFFECT OF STEAM-COAL RATES IN GAS PRODUCER

USING the same experimental technique as in the previous work of this series, a study was made of the effect of increasing the amount of steam admitted with the blast (lb. steam per lb. coal) on the reactions in the fuel bed of a gas producer. Runs were made using from 0.366 to 1.03 lb. steam per lb. of coal with constant depth of fuel bed (3.0 ft.) and constant rate of firing (40 lb. per sq. ft. per hour). It was found that the heating value of the gas and the cold gas efficiency remained practically constant with increasing amounts of steam. The percentage steam decomposed decreased with increasing steam. The amount of CO in the final gas decreased due to lower temperatures in the primary reduction zone. This was counterbalanced by the increased amounts of H_2 due to greater absolute amounts of steam decomposed. The primary reduction zone thickness remained constant. (Paper read at Tulsa meeting of the American Chemical Society.)



NEWS OF THE GAS INDUSTRY



Refrigeration Committee Meeting

Symposium Held on Producing Cold With Gas

The Refrigeration with Gas Committee of the Commercial Section of the American Gas Association, held a symposium in New York City, Tuesday, April 20, on The Production of Cold With Gas. The meeting of the committee took place in the auditorium of the Consolidated Gas Company. This meeting was preceded by a demonstration of the operation of two types of gas refrigerators, one made by the Sorco Manufacturing Company of Scranton, Pa., and the other by the Servel Corp., N. Y. C. Gas men gathered early in the morning to view the operation of these refrigerators and the sessions began at 10 o'clock, being called to order by H. D. Valentine, Peoples Gas Light and Coke Co., Chicago, Illinois, Chairman of the Committee.

Major Alexander Forward, Secretary-Manager of the American Gas Association, welcomed the gas men to the meeting. The first paper of the symposium was presented by Mr. Nils T. Sellman, Consolidated Gas Company of New York City. Mr. Sellman's paper dealt with the importance of the refrigeration load to the gas industry. He gave an interesting account of the quantity of ice consumed per year in New York City, which is a very good indicator of the amount of refrigeration that can be done with gas under the proper conditions. He said that there is a possibility of raising the annual domestic consumption of gas through its use in refrigeration from 36,000 cubic feet per customer to 50,000 cubic feet per customer. It was also brought out that gas refrigeration would have a stimulating effect on the application of gas for other purposes in the home. Both house heating and water heating would be benefited by the use of gas in refrigeration.

Cost of Mechanical Refrigeration

The second paper was delivered by F. C. Mackey, of Chicago, Ill. He spoke on the cost of mechanical refrigeration to the public. His paper gave an analysis of the various items in the cost and showed how these were calculated. Of course, the first cost is in favor of ice refrigeration but the advantages to be gained from gas refrigeration make the first cost of secondary consideration.

The next paper was read by Hugh E. Keeler, Assistant Professor of Mechanical Engineering, University of Michigan, Ann Arbor, Michigan. He discussed the question of whether or not the adoption of the absorption or adsorption system of refrigeration by electrical industry is imminent. He brought out the fact that it is not only imminent but actually here, and developed a number of reasons why this situation has arisen. In other words, Mr. Keeler's paper indicated that, instead of the electric companies advocating the use of electricity as a mode of power in that type of refrigerator that contains moving parts they are tending towards the use of electricity as a heating agent.

Mr. Fred. G. Keyes, of Cambridge, Mass., delivered a talk on adsorption and its relation to refrigeration. This paper contained a very thorough discussion of this subject and dealt as well with the character of the adsorption used in the refrigerating system. He indicated the various characteristics that this material must have in order to give good results. An interesting remark was that the substance silica gel, which is used considerably in the chemical industry for adsorption chemicals, is now being used in the gas refrigerator.

Messrs. O. T. Knight of Chicago, and Stuart Otto, of New York then delivered talks on "Self Contained Units vs. Separate Household Absorption Refrigeration Systems. Mr. Knight came to the conclusion that there were no apparent advantages to be gained from the self-contained units other than a possible manufacturing economic. He also stated that from the sales standpoint the field for self-contained gas-fired unit is very limited.

Mr. Otto maintained that the cheapest to install and most salable is the self-contained unit.

Cooling Homes by Refrigeration

An interesting talk was also delivered by A. R. Stephenson, Jr., Schenectady, New York, on cooling homes, a field for refrigeration. This is an idea which is very novel and of interest to all who live in the cities and towns where the climate is hot and humid in the summer time. Just what would be involved in the way of cost in a system used for cooling air in the house at summer time, was discussed in detail.

Mr. H. B. Hull of Dayton, Ohio, then spoke on High Capacity Gas-Fired Refrigeration Units. This was followed by a paper by N. B. Wales, of New York, on the Possibility of an Efficient Air Cooled Absorption or Adsorption System. In this paper a detailed discussion was given on such a system, followed by a detailed discussion of the thermal character of the same.

The last paper was by Cyrus Barnes of Boston on How Can We Most Effectively and Quickly Make Refrigeration With Gas a Merchandising Surety?

It may be mentioned that the meeting was honored by the presence of two Japanese gas men: Kenkichi Nagai, Industrial Engineer, Toho Gas Co., Nagoya, Japan, and S. Konija, Chemical Engineer, North Kyushu Gas Co., Ltd., Kokura, Japan.

Three Gas Associations Meet at Philadelphia

New Jersey Gas Association, Pennsylvania Gas Association, and Eastern States Gas Conference, Hold Annual Meetings

Three gas association meetings were held at the Bellevue-Stratford Hotel, Philadelphia, Pa., April 21 and 22, vs. New Jersey Gas Association, Pennsylvania Gas Association and the Eastern States Gas Conference.

New Jersey Gas Association

The new officers of the New Jersey Gas Association elected for the ensuing year are as follows:

President, L. N. Yetter, Atlantic City, N. J.; 1st vice-president, J. L. Conover, Newark, N. J.; 2nd vice-president, R. A. Koehler, Newark, N. J.; secretary-treasurer, Louis Stoecker, Newark, N. J.

The Industrial Gas Sales Promotion Committee presented a very interesting report, which has been printed in an 18-page booklet, entitled "Industrial Gas Salesman's Hand Book." The object of the booklet is to assist the gas companies who do not maintain an industrial gas department. A copy will be sent to all members of the New Jersey Gas Association, and it may be purchased at fifteen cents per copy by anyone interested.

After other committee reports were presented to the meeting, it adjourned to attend the session of the Eastern States Gas Conference.

Complete report of this latter meeting will be found in the May 1st issue of the American Gas Journal.

Meeting Pennsylvania Gas Association

The new officers of the Pennsylvania Gas Association for the ensuing year are as follows:

President, A. C. Taylor, Reading, Pa.; 1st vice-president, Joseph Jeffrey, Scranton, Pa.; 2nd vice-president, John A. Weiser, York, Pa.; secretary-treasurer, George L. Cullen, Harrisburg, Pa.

The association took in 187 new active members, and six new gas company members. The new gas company members were Donegal Gas Company, Mt. Joy, Pa., Mr. P. Franck Schock, manager; Williamstown Gas Co., Mr. J. E. Gledhill, president; Nazareth & Elizabethtown Gas Co., V. Duke, manager; Honesdale Consolidated Lighting, Heat and Power Co., H. M. Diehl, manager; East Penn. Gas Co., Tamaqua, C. E. Wood, manager; Easton Gas Co., F. M. Baty, superintendent.

The total membership is nearly 800.

The following amendment to the Constitution and By-laws of the Association was adopted:

Article 19—Dues, Section 50:

Every active member shall pay annually in advance, the sum of one dollar. The dues as above provided shall be effective May 1st, 1926.

Mr. W. G. Murfit, the retiring president was presented, with a watch fob to which was attached a reproduction of the seal of the Association.

After various reports had been read the meeting adjourned to attend the meeting of the Eastern States Gas Conference.

* * *

Iowa District Gas Association Elects Officers

At the annual meeting of the Iowa District Gas Association, held at Des Moines, Iowa, April 21, 22, 23, the following officers were elected:

President, Frank S. Edge of Grinnell; first vice-president, C. A. Nash of Davenport; secretary-treasurer, H. R. Sterrett, Des Moines.

Mr. Sterrett was also named second vice-president.

The new council members are: John F. McGuire, Fargo, N. D., and C. H. Meyers, Iowa City, Iowa.

A proposal was made by the Council to change the name to Midwest Gas Association.

* * *

North Dakota Gas Plants to Be Improved

Valley City, N. D.—Gas plants here and in Bismarck will be extended and improved by the Consolidated Utilities Company, a new North Dakota corporation with headquarters in Bismarck, which bought the properties from Senator Frank E. Ployhar of Valley City.

A budget of $104,000 for 1926 has been set aside for improvements to be made in both plants.

Mr. Ployhar, who has been in the gas business here for the last 13 years, and at Bismarck for the last 10 years, is one of the incorporators and becomes the president of the new corporation. The deal just completed represents the successful culmination of two years of effort by Mr. Ployhar to interest sufficient eastern capital to finance improvement and extension activities in the gas business.

Other incorporators are James Trimble and Frederick R. Ahbe of Minneapolis.

The corporation is organized for the purpose of doing a general public utility business. It is capitalized at $500,000, with $300,000 preferred and $200,000 common stock.

Construction work will be begun as soon as the frost is out of the ground, it is announced. Trimble, one of the incorporators and a gas engineer of many years experience, will have charge of the construction work and operations of the plants.

Appliances to be Displayed at Industrial Course

All equipment manufacturers are given an opportunity to display their products at the University of Illinois, Urbana, Illinois, during the short course on Industrial Gas Engineering, June 21 to July 10, 1926. This course is attracting wide attention among gas companies and Industrial Gas Engineers, especially in the Middle West. Present indications are that the enrollment in the course will exceed 100 students.

Those manufacturers desiring to send equipment to the University for display purposes, kindly communicate with Prof. T. E. Layng, 155 Chemistry Building, University of Illinois, or with Mr. L. C. Harvey, Room No. 1554, 230 South Clark Street, Chicago, Illinois.

Western Gas Associations Hold Joint Meeting

The following was the program of the joint meeting of the Pacific Coast Gas Association and the Arizona Utilities Association, held in Tucson, Arizona, April 16 and 17.

Friday, April 16

9 A. M.—Promoting Good Will Through the Sale of Appliances. A. F. Moriarty, Sales Manager Central Arizona Light & Power Company, Phoenix, Arizona.

10 A. M.—Reception Pacific Coast Gas Association Delegation.

12 Noon—Luncheon.

2 P. M.—Customer Ownership. O. L. Moore, Manager Customers' Department, Los Angeles Gas and Electric Corporation, Los Angeles, California.

3 P. M.—Coal and Water Gas vs. Oil Gas. W. S. Dole, Gas Engineer Federal Light & Traction Company, New York.

3.30 P. M. to 6 P. M.—Sightseeing.

7.30 P. M.—Dinner Dance.

Saturday, April 17

9 A. M.—Development of Lamp Black Concentration. W. S. Hornberger, Asst. General Manager, Central Arizona Light & Power Co., Phoenix, Arizona.

10 A. M.—Public Relations. Don C. Ray, Manager Bureau of Public Relations, Pacific Gas and Electric Company, San Francisco, California.

11 A. M.—Pipe Protection. Dozier Finley, Research Engineer, Paraffine Companies, Inc., San Francisco, California.

1.30 P. M.—Round Table. Open Discussion by members on Regulation, Taxation and Public Relations.

P. S. C. Approves New Philadelphia Gas Lease

Philadelphia, Pa.—The new lease under which the United Gas Improvement Company in 1928 will continue the operation of the city-owned works has been approved by the Public Service Commission.

Indorsing the provisions of the new city-company contract, the commission in its report filed in Harrisburg says it is "without question far more acceptable and equitable in the public interest than that under which the city's gas works have been operated during the last twenty-nine years."

The outstanding features of the new lease are:

Terminable at ten-year intervals, either by city or company.

Rate to domestic users to be $1 until changed, changes to be based upon increase or decrease in operating expenses.

Provision for schedules of alternative rates for large users of gas.

A gas commission of three members to be appointed.

Annual return to city, $4,200,000.

Annual return to company, $800,000. Additional return provided for up to $1,100,000, based on sales of gas and economies of operation.

Yearly betterments amounting to not over $2,000,000 to be paid for out of receipts for gas. Over that sum city may provide necessary funds.

Gas to have heating value of 530 B.T.U. per cubic foot.

Gas Men on M. I. T. Advisory Committee

Boston, Mass.—President S. W. Stratton of the Massachusetts Institute of Technology has appointed the following as a committee from the Industry to advise on the new course in Gas and Fuel Engineering established this year at the Massachusetts Institute of Technology:

W. R. Addicks, vice-pres., Consolidated Gas Company of N. Y.

A. M. Barnes, pres., Cambridge Gas Light Co., Cambridge, Mass.

Walter Barnum, pres., Pacific Coast Coal Co.

D. D. Barnum, pres. Boston Consolidated Gas Co.

H. L. Doherty, pres., H. L. Doherty & Co.

F. A. Howard, vice-pres., Standard Development Co.

J. B. Klumpp, vice-pres., United Gas Improvement Co.

F. R. Lowe, editor of "Power," McGraw-Hill Book Co.

R. M. Searle, pres., Rochester Gas and Electric Corp.

W. E. Steinwedell, sec., Gas Machinery Co.

T. R. Weymouth, pres., Iroquois Gas Company.

At the first meeting of this committee which was held at Cambridge, Mass., the general educational and research program was discussed. Future meetings of this committee will be held from time to time in order to keep the Institute in close contact with the fuel producing and fuel using industries.

* * *

T. N. McCarter Elected to U. G. I. Board

Thomas N. McCarter, president of the Public Service Corporation of New Jersey, was elected today a director of The United Gas Improvement Company to fill the vacancy caused by the death of Randal Morgan.

* * *

Birmingham Rates Approved

The Alabama public service commission has granted petition of the Birmingham Electric Co. for approval of a schedule of gas rates for application in certain unincorporated territory in Jefferson County. The schedule is the same as that applied at Boyles, Inglenuck and Tarrant City, providing a charge of 11½ cents a hundred for each 100 cubic feet or part thereof of the first 5,000 cubic feet consumed monthly, and also provides that the minimum charge per meter per month shall be $1.

A discount of one-half cent per 100 cubic feet is provided where bill is paid within 10 days from rendition.

Pacific Gas Men to Meet in August

The 1926 Convention of the Pacific Coast Gas Association will be held at the Hotel Vista del Arroyo in Pasadena on August 23 to 27. Wm. Thompson, President of the Reliance Manufacturing Company of Pasadena, California, is the chairman of the Convention Committee.

The Oklahoma Gas Meter Short Course

Held This Year for Third Consecutive Time

An activity of the College of Engineering of the University of Oklahoma, which is growing in importance each year and in which the public has a vital interest, is the Southwestern Gas Meter Short Course which was held at the Engineering Building at Norman, April 20-21-22 and 23. This was the third annual gas meter short course to be held at the university.

Starting in 1924 with a small attendance and limited equipment the short course has grown each year in attendance and subjects covered until this year's school reached an enrollment in excess of any previous year. Students attended from several states including Oklahoma, Kansas, Arkansas, Texas and Louisiana. When first established the school appealed principally to technical men employed in the meter and gas engineering deepartments of various gas companies. The public had little, or no, conception of the benefits it might derive from this school.

The University of Oklahoma, however, which has conducted this school and furnished its laboratories and a number of instructors, had a vision from the beginning of the great service it could render, not only to gas companies but to the people of Oklahoma through the fostering of more correct standards of measurements of natural gas and of more efficient methods of repairing meters and handling other mechanical problems in connection with the distribution of natural gas.

Value Being Recognized

A section of the public has already recognized the value of this school and had representatives at each session of the short course this year. Several large industrial corporations, including a number of oil companies, had representatives in attendance. Many such industries use natural gas, which is measured through meters owned by themselves. It is to their advantage to give their employes who handle this equipment as complete a knowledge as possible of gas meter and gas distribution problems.

Many people are also beginning to see the advantages to gas consumers in having more thoroughly trained and efficient gas meter repairmen, meter readers and gas distribution engineers in the employ of the gas companies of the state. Such consumers will have less reason to complain of incorrect measurements when their meters are handled by trained experts possessing a full knowledge of this intricate subject.

The progressive gas companies of the state are equally concerned in maintaining at all times correct standards of measurement as their customers, when these conditions prevail, are better satisfied and satisfied customers are the greatest asset of a public utility, as well as of any other business. Meter engineers say that the modern gas meter is more accurate than the average watch, and that ninety per cent of all meters tested by gas companies in Oklahoma test within the degree of accuracy provided in the laws of this state—that is, not more than two per cent slow or fast. Tests made by some of the leading companies in the state show that the precentage of variation on a correct standard of measurement is more often from one to one-half per cent than the two per cent allowed by law.

Purpose of Gas Meter School

One of the purposes of the gas meter school is, however, to secure even greater accuracy in the measurement of gas and to reduce the percentage of inaccurate meters to the lowest possible number; also to create a greater degree of efficiency in analyzing and correcting gas measurement and gas distribution troubles.

Another important public contact resulted from the school this year through the attendance of a number of women employes of the gas companies of the five states that participated. These women are employed in departments of the gas companies where they handle and adjust complaints from the public and make out monthly bills. Some of the women employees in the Public Relations Departments of leading companies also attended so that they might more fully grasp the problems involved and be better able to bring about a more harmonious relation between their company and its customers. The leading representative in women's public relations work in the southwest was on the program for the first day of the short course. She is Mrs. Bess Brooks of Oklahoma City, who is chairman of the Women's Public Relations Committee of the Southwestern Geographic Division, National Electric Light Association. Mrs. Brooks addressed the school on the subject of "Women in the Gas Industry."

Institutions Supporting Cause

The Corporation Commission of Oklahoma and the Oklahoma Utilities Association assist the College of Engineering, University of Oklahoma, in putting on this short course. Each institution cooperates in furnishing representatives on the committee, which manages the short course, and also in securing competent instructors. The instructors include members of the faculty of the College of Engineering, representatives of several of the largest gas meter manufacturing establishments in the country, experts from the U. S. Bureau of Mines from Bartlesville, and managers, superintendents and gas engineers from leading gas companies of the southwest.

The short course was divided in two groups of instruction, one emphasizing repairing and demonstration of gas measuring equipment and the other including instruction and lectures in the class rooms on more advanced subjects. Many different makes of gas meters and other equipment were available in the shops of the engineering school and many hours were devoted by the various classes, each supervised by an instructor, in participating in actual shop work with gas meter testing devices. The lectures in-

cluded such subjects as gas distribution problems, pressure and leakage surveys, determining the specific gravity of natural gas, and analysis and measurement of gas in large volumes at high and low pressure.

Equipment which measures gas in large volumes was demonstrated during the short course this year for the first time and many important and interesting facts relative to this fact were brought out.

Day and Night Sessions

The short course included both day and evening sessions and kept the students busy throughout the four days. The school, however, was not made up entirely of work but there were some brief recreation periods and several entertainment features. Tuesday evening, April 20, was devoted to entertainment. An address on "Public Relations" and a demonstration of accident prevention, followed by a smoker and get-together meeting featured the session of Wednesday evening, April 21. The annual banquet of the meter school was held at the McFarlin Memorial Church at 7.00 P. M. Thursday, April 22, Mr. J. F. Owens presiding as toastmaster, with addresses by Dr. W. B. Bizzell, President of the University of Oklahoma; J. H. Felgar, Dean of the College of Engineering, and Fred Capshaw, Chairman of the Corporation Commission of Oklahoma.

The committee which arranged and directed the gas meter short course this year consists of the following:

G. B. Helmrich, Norman, Professor of Mechanical Engineering, University of Oklahoma, Director of Gas Meter School.

J. H. Baxter, Oklahoma City, Oklahoma Gas and Electric Company, Chairman of Committee.

F. E. Franks, Bartlesville, The Empire Companies.

E. A. Clark, Tulsa, Oklahoma Natural Gas Company.

Eugene Metz, Kansas City, Mo., Representative, American Meter Company.

B. P. Stockwell, Oklahoma City, Gas Engineer, Corporation Commission.

E. F. McKay, Oklahoma City, Manager, Oklahoma Utilities Association.

R. F. Hinchey, Okmulgee, Manager, Okmulgee Gas Company.

D. C. Williams, Ponca City, Vice President, Ponca City Gas Distributing Company.

Brooklyn Union Establishes New Headquarters at Springfield, L. I.

Brooklyn, N. Y.—The residents of Springfield welcomed with much enthusiasm the establishment of a headquarters of the Gas Company at East Gate Plaza and Springfield Boulevard. The establishing of this headquarters shows with what energy the Gas Company is working to give the citizens of this town gas service. Once the Company started they went right ahead in the laying of mains and the extending of services into the houses as quickly as possible.

A demonstration was given at the Presbyterian Church in the preparation of soups and appetizers. There were about 125 women residents of Springfield present at this demonstration and they were outspoken in their expressions of praise over the enterprise of the Company in establishing this office.

There will be five additional lectures given at the church during the next three weeks.

Announcements of the extension of gas service was made from all the church pulpits last Sunday morning and the people of Springfield were advised and requested to cooperate with the Gas Company in every way in order to make living at Springfield more desirable.

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Gas Companies Installing Ammonia Stills

Chicago, Ill.—John S. Unger, Mechanical and Chemical Engineer specializing in ammonia distillation, announces that during the month of February he installed a liquor preheating attachment to the 30" Unger Still at the works of the Malden & Melrose Gas Light Co. of Malden, Mass., whereby the liquor is preheated to about 203° F. on its way downwards and before entering the still proper, thereby eliminating about 80% of the CO_2 and about 50% of the H_2S impurities, besides driving out the oil and pyridines so the concentrate becomes as clear as water.

Although the steaming of the vertical retorts is the cause of a considerable amount of CO_2 in the gas and consequently also in the liquor, the concentrate of 0.978 specific gravity and containing 21% ammonia would contain only 5.57% CO_2 and 0.68% H_2S.

Such a concentrate is of considerable more value to the refiners than the ordinary gas house concentrate and the Merrimac Chemical Company of Boston pays the gas companies a bonus in accordance with the purification obtained during the process of concentration.

He has also a similar contract with the Brockton Gas Light Co. of Brockton, Mass., to improve their 36" Unger still. At Brockton he will also install a new lime feed whereby lime is placed on a grate in a closed vessel and the liquor from the volatile still pumped through the lime from below upwards, thereby doing away with the addition of water and causing an economy in lime and a saving in the expense of keeping the still clean.

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Adirondack Power Schedule Approved

Albany — The Public Service Commission has approved a new schedule of the Adirondack Power & Light Corporation for gas service supplied in Schenectady district. Schedule filed to become effective April 15, 1926, reduces rate for general use from $1 to 91c per M. C. F. for all gas consumed in excess of 100,000 C. F. Present prompt payment discount of 10c per M. C. F. changed to 10c per M. C. F. on the first 100,000 C. F., plus 1c per M. C. F. on any used in excess of that amount.

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Ruud Manufacturing Co. to Open New York Show Room

The Ruud Manufacturing Company of Pittsburgh, Pa., will shortly open a show room in the Real Estate Board Building, 10 East 41st Street, New York City. The New York office will be moved to this address on May 1. The show room proper will be opened within a few weeks after the office is occupied.

Fall River Gas Works Co. Insures Employees

New York, N. Y.—The Fall River Gas Works Company, of Fall River, Mass., has provided more than two hundred of its employees with approximately $210,000 life insurance under a group program which includes a free visiting nurse service in addition to the protection established.

Underwritten by the Metropolitan Life Insurance Company on a co-operative basis, the expense of the plan will be shared by the employer and employees through the joint payment of premiums. The company's contributions for this purpose are so liberal, however, that the cost to employees will be substantially reduced.

Each worker participating in the plan receives $1,000 life insurance. In case he becomes totally and permanently disabled before age 60, the full amount of his insurance will be paid to him in monthly installments for a stipulated period. During this time, premium payments will be waived by the insurance company.

Besides the nursing service, whose facilities are available without cost to each participating employee, pamphlets on health subjects and sanitation will be distributed periodically by the insurance company.

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Gas Company Will Build in Gate City

Colton, Calif.—In order to keep pace with the consistent development and growth of the entire valley, the Southern California Gas Company will build a new two-story structure, 40 feet by 110 feet, to house its San Bernardino offices.

There will be an exhibit room in the basement for automatic hot water storage tanks and other heating apparatus. A stairway will connect lobby and basement.

On the main floor a reinforced concrete and steel vault will protect the company's records from fire. The main floor will be given over primarily to the offices of the district agent, Mr. Oliver Jacobi, and to the customers' department. Mr. H. C. McAllister, division manager; Mr. J. S. Edwards, division superintendent, and Mr. F. H. Biddington, division foreman, will occupy the second floor. Here, too, will be located the engineering offices, the new business department and an assembly room.

The entire building will be heated and supplied with hot water by an automatic gas-fired low-pressure boiler. The roof will be of semi-flat construction. Windows will be provided with steel frames, the screens being of copper fly mesh. A separate building in the rear will serve as a fireproof garage.

Nothing has been left undone to make the Southern California company's new home an outstanding architectural and artistic achievement. All interior woodwork will be of figured gum, and all partitions will be made of tile. The walls inside the main floor will be stippled and marked to resemble stone. The entire lower front will be of plate glass, and the face of the building will be finished in stucco, with glazed tile trimmings.

San Bernardino may well be proud of this addition to its business section.

Utilities to Merge in Pennsylvania

General Gas and Electric to Combine Subsidiaries into a Unified System

New York City—Following approval by the Pennsylvania Public Service Commission of the sale of the North Penn Power Company to the Northern Pennsylvania Power Company, the General Gas and Electric Corporation, it has been announced that it was about to combine four of its subsidiaries in Northern Pennsylvania into a unified system.

The North Penn Company supplies fourteen communities in Bradford, Tioga and Potter Counties and obtains most of its power from the Sayre Electric Company, Sayre, Pa. The Northern Pennsylvania Power Company, formerly the Towanda Gas and Electric Company, supplies electricity in and near Towanda and Monroe and holds franchises for a dozen more townships in Bradford County. A ten-mile line is being built to connect the Northern Pennsylvania and Sayre systems.

Merger of the North Penn and Northern Pennsylvania companies under the name of the latter will follow the sale of property and franchises and is expected to become effective April 1. The Sayre Electric Company and the Susquehanna County Light and Power Company of Susquehanna are also to be merged with the Northern Pennsylvania Company.

General Gas subsidiaries, notably the Metropolitan, Edison and New Jersey Power and Light Companies, comprise the Pennsylvania-New Jersey Super Power System extending from Northern Maryland to near New York. The Binghamton Light, Heat and Power Company, another subsidiary, operates in Southern New York State near the Northern Pennsylvania system.

East Ohio Gas Co. to Make Improvements

Cleveland, O.—Close to $1,500,000 will be spent this summer by the East Ohio Gas Company on extensions and on service improvements in Cleveland and the suburbs which it serves.

Part of this money goes into the replacement and enlargement of old mains and into new meter equipment and installation, but the bulk goes into new service lines in accordance with the franchise agreements which run to December, 1928.

Seattle Lighting Company Increases Capital

Seattle, Wash.—Owing to the rapid growth of Seattle and the necessary expansion to meet the increasing demands upon the company, the Seattle Lighting Company has increased its capital stock from $4,000,000 to $10,000,000. S. R. Hutchinson, secretary of the company, said that the development required to meet the expanding business of the company necessitated extended financing, and the capital stock has been increased to aid in this.

Utilities Merger Covers Six States

New York City—Formation of the Central Gas and Electric Company to operate plants in sixty-nine communities of Illinois, Wisconsin, Michigan, Indiana, New York, Maine and New Brunswick, has been announced by Colonel A. E. Pierce of Chicago, President.

The Consolidated Water Company, which supplies water along the Eastern side of the Hudson, is included in the nine companies in the consolidation. It will be financed by a group consisting of the Federal Securities Corporation, H. M. Byllesby & Co., West & Co., Pearsons-Tarft Company and Thomas, Ross & Co.

The new company was incorporated in Delaware, and will have headquarters at 209 La Salle St., Chicago.

Companies in the merger, besides the water company mentioned, are the Illinois Public Utility Company, Wisconsin Public Utility Company, Lower Peninsula Power Company of Grand Rapids, Hoosier Public Utility Company of Indiana, Vincennes Gas Property of Indiana, Houghton County Electric Light Company of Michigan. Properties in Maine and New Brunswick also are included.

Colonel Pierce joined the Westinghouse Electric and Manufacturing Company in 1900, and later became sales engineer of the General Electric Company and manager of the Chippewa Railway, Light and Power Company of Wisconsin. The latter company was merged with others into the Wisconsin-Minnesota Light and Power Company in 1914, with Colonel Pierce as Vice-President and General Manager.

William McGregor, Pawtucket Gas Man, Honored

Pawtucket, R. I.—Pawtucket recently enrolled a new member in its own Hall of Fame. For several hours in the softly lighted, den-like quarters of the Golf Club William McGregor listened to his praises sung and heard himself elevated to the highest honor an appreciative community can bestow upon a benefactor.

Quietly the tall, sparely built guest of honor arose in the midst of the flowery verbal deluge and reminded the gathering of prominent citizens of city and state: "I was wee McGregor when I came into this room. I will still be wee McGregor when I leave here."

Perhaps for the first time was told publicly the story of the ramified activities of the man whose influence has dominated many of the greatest civic projects in Pawtucket's history. From the poetic toast by Judge Frank E. Fitzsimmons, the speeches by former president Thomas P. Corcoran of the Chamber of Commerce; Rev. James D. Dingwell and former Governor James H. Higgins, and the mass of congratulatory messages which poured in, even from Europe, the story of the life and works of William McGregor was pieced together.

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1,000,000,000 Cubic Feet of Gas Is Needed Always

New York City—To maintain service, gas companies in the United States must keep more than 1,000,000,000 cubic feet of gas in storage, according to the New York State Committee on Public Utility Information. The storage tanks represent an investment of $125,762,000.

The capacity of gas tanks roughly equals the maximum demand for gas in one day. The tanks therefore vary from small units of 50,000 cubic feet capacity to those of 15,000,000 cubic feet maintained by the Consolidated Gas Company at Astoria. On ordinary gas stove with four top burners and two oven burners would burn at full capacity for about fourteen years on the gas contained in one of the large New York City tanks.

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DERBY GAS CO. TO BE SOLD

Outside Interests Have Offered $75 a Share for the Stock of Company

New Haven, Conn.—The deal that is on with every promise of successful negotiation for the Derby Gas and Electric Company stocks, will mean the payment of over $7,200,000.

The price to be paid is over $75 a share. The par value of the stock is $25, and the capitalization of the company is $2,400,000. It is an 8 per cent. stock.

For several years the late Charles H. Nettleton, president of the New Haven Gas Company, was president of the Derby Gas and Electric Company, and was largely interested financially in the Derby company.

* * *

Western States Gas Co. Buys Site for Huge Gas Tank

Stockton, Calif. — Anticipating the need for increased gas storage facilities, the Western States Gas & Electric Company has purchased a site for a holder.

No immediate construction is planned by the Western States Gas & Electric Company. The corporation has in view, however, the erection of a gas storage tank to cost in the neighborhood of $400,000. This will not be built this year it was announced by company officials. It will not be erected at least until 1927, or until such time as the demand for gas may warrant the construction.

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Cheboygan Gas Light Co. Sold

The gas plant at Cheboygan, Michigan, until recently owned by the Cheboygan Gas Light Co. and operated for the past six months by the Michigan Trust Co., with George H. Waring as agent, has just been sold under a foreclosure sale instituted by the trustee for the bondholders. The property was purchased by the Gas Company of Cheboygan, a Michigan corporation. The officers of the new company are as follows:

George H. Waring, president; Charles McPherson, vice-president; J. D. Learmonth, secretary-treasurer.

J. D. Learmonth has been appointed manager, having held this position for the past six months under the trustee. Mr. Learmonth was formerly manager of the Portage, Wisconsin, Gas Company.

The new company will commence at once the rehabilitation of the property, extend the service and revise the present rates.